

but is, in each case, a partly detached layer of snow, that adhered to and was partly lifted up by the roll while that was revolving, but that settled back to earth at a later time, owing to the continuation of the process of partial melting that was going on at a temperature of 34° to 36° F. In case the roller had undergone another revolution such windward layer would doubtless have gone with it, and been incorporated within the mass. Many of the rollers formed on a practically level surface, and some were actually rolled up a slight incline.

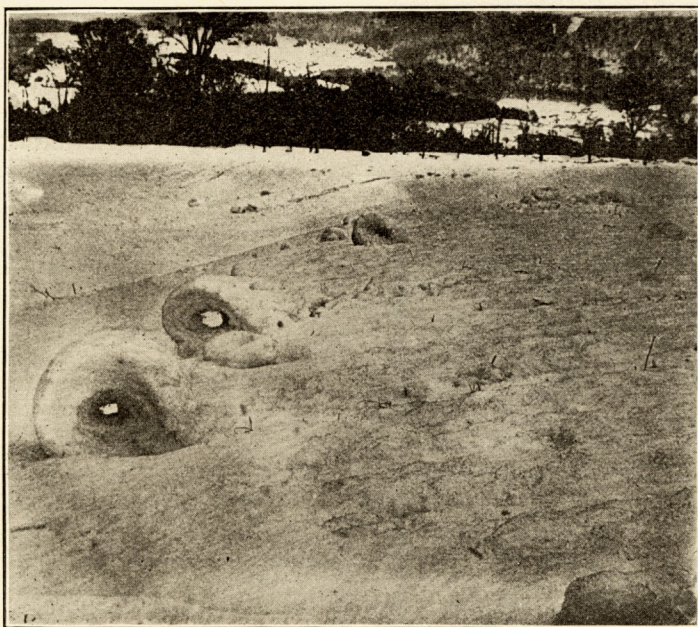


FIG. 1.—Snow rollers at Jericho, Vt.



FIG. 2.—Snow rollers at Jericho. Vt.

SNOW ROLLERS AT MOUNT PLEASANT, MICH.

By Prof. R. D. CALKINS. Dated Central State Normal School, Mount Pleasant, Mich., June 27, 1906.

On the evening of January 17 [1906], the wind at Mount Pleasant, Mich., was northeast, and a light flaky snow was falling. During the night the wind backed through north and

northwest to the southwest. In the morning we found that at the northwest corner of the Normal School Building snowballs, or snow rolls, to the number of fifty or seventy-five had been formed. They varied in size from three inches in diameter to twelve inches. They were rolls of snow rather than snowballs, for most of them had square ends. They were spiral in structure when viewed from the end. Behind each roll was a path where the snow had been taken up, and the depth of snow removed from this path corresponded very closely to the thickness of the layers forming the roll. These paths became narrower as the corner of the building was approached, where they all disappeared, as indicated in the diagram, fig. 1. The rolls were very light and would hardly hold together sufficiently to preserve their shape when lifted. Some boys from the country on the same morning reported similar balls two feet in diameter. The wind has a long, unobstructed sweep from the southwest. There were no tracks of children about the balls, and there can be no doubt that they were wind-formed. Can you give me any more information concerning the origin of such balls or rolls? Just why, and how, do they start?

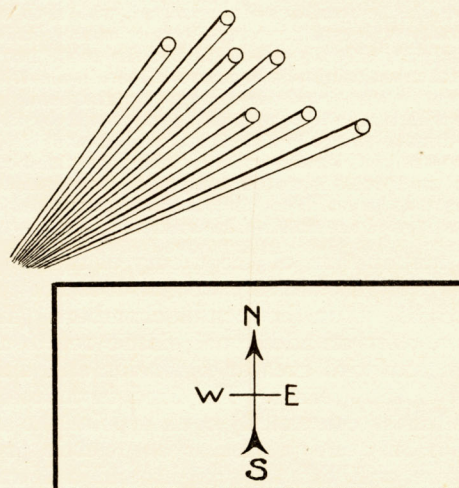


FIG. 1.—Paths of snow rollers at Mount Pleasant, Mich.

Note.—The initial step in the formation of snow rolls seems not yet to have been observed. They appear generally to be formed at nighttime, or in the very early morning, and the diagram by Professor Calkins suggests that they are formed by or among the eddies in the strong wind at the corner of a building or other obstacle.

We note that in the *Meteorologische Zeitschrift*, May, 1895, p. 198, Prof. K. R. Koch, of Stuttgart, mentions three ways in which snow becomes hardened after it has fallen:

1. A warm snowfall is followed by cold west winds that favor compression, the wind in descending gusts forcing or pressing it into a hard, solid mass.

2. Hard surfaces are formed by melting and freezing and become hard enough to support the mountain climbers in the Alps and Black Forest.

3. In March and April in the mountains, before thawing weather begins, the insolation is powerful, and snow crystals exposed in the sunshine are evaporated and the vapor is actually recrystallized; thus very large crystals are formed and the layers of snow become quite solid; it is not impossible that large nuclei may thus be formed.—C. A.

MONTHLY REVIEW OF THE PROGRESS OF CLIMATOLOGY THROUGHOUT THE WORLD.

By C. FITZHUGH TALMAN, U. S. Weather Bureau.

THE ASIATIC RAILROADS AND THE PROGRESS OF METEOROLOGY.

This is emphatically an era of railroad building throughout Asia. It may be but a few years before we witness in Asia a